Top Management Team Power in China: Measurement and an Application

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Top Management Team Power in China: Measurement and an Application

Abstract

We propose and validate a comprehensive measure of power for the top management teams (TMTs) of publicly listed Chinese firms. We show that our measure is positively associated with the four power dimensions developed by Finkelstein (1992) for U.S. firms as well as three Asia-relevant power dimensions, including political connection, seniority and gender. We find that our TMT power measure is a valid proxy for TMT power for both state-controlled firms and non-state-controlled firms, and for specific categories of top executives (e.g., CFOs). We also compare our TMT power measure with alternative proxies and find no evidence that the alternative proxies are better than our measure in capturing TMT power. Finally, we illustrate the usefulness of incorporating TMT power in hypothesis tests by examining the relation between CFOs' accounting backgrounds and their firms' long-lived asset impairment decisions.

Key words: power; top management team; asset impairment; China

JEL classification: G02; G30; G31

1. Introduction

The management literature has long recognized the importance of top management teams (hereafter referred to as TMTs) in corporate decision making (e.g., Hambrick and Mason 1984; Finkelstein, Hambrick and Cannella 2009). Existing empirical evidence from the management literature suggests that it is the entire TMT rather than the CEO alone that determines organizational outcomes (Hage and Dewar 1973; Tushman, Virany and Romanelli 1985; Finkelstein 1988; Ancona 1990; O'Reilly, Snyder and Boothe 1993; Tushman and Rosenkopf 1996). The recent accounting and finance literatures have also started to recognize the importance of top executives other than the CEO to major corporate decisions (Bertrand and Schoar 2003; Graham et al. 2005; Bamber et al. 2010; Dyreng et al. 2010; Ge et al. 2011; Dichev et al. 2013). Central to the research on TMTs is the distribution of power among the TMT members because individual top managers are able to influence organizational outcomes only to the extent that they have power.[1] Finkelstein (1992, p. 532) notes that research on TMTs requires a "recognition of the role of power in strategic choice and a means of incorporating power" if stronger predictions of executive effects are to be found.

Unfortunately, it is difficult to incorporate managerial power into large-scale empirical research because managerial power, a multi-dimensional construct, is unobservable to researchers. One could attempt to use the observable individual power sources to construct a managerial power proxy, but such an approach faces several major obstacles. First, many sources of managerial power are unobservable. Second, even if all the sources of power can be directly measured, it is costly to collect such data for large samples of publicly listed firms (e.g., Finkelstein 1992). Third and more importantly, we do not know how to weigh the individual power sources to derive an overall power score for an executive.

[1] Following Finkelstein (1992), we define power as the capacity of individual actors to exert their will.

The objective of this study is to propose a comprehensive measure of TMT power at low cost. Specifically, we hypothesize that the ordered TMT name list disclosed in the annual reports of publicly listed Chinese firms can be a proxy for the power of individual TMT members. Even though publicly listed firms in many countries (including China) are required to disclose the entire list of the TMT in their annual reports, the names of the individual TMT members are usually listed in alphabetical order.[2] However, the names of the TMT members in most publicly listed Chinese firms' annual reports are not listed alphabetically, raising the possibility that Chinese firms' ordered TMT name list is a proxy for managerial power.

Why could the ordered TMT name list be a valid proxy for managerial power in China? The Differential Mode of Association (*chaxugeju* in Chinese) theory proposed by a renowned Chinese Sociologist Fei Xiaotong provides a potential explanation (see Fei et al. 1992). Dr. Fei argues that Chinese society is a relational society founded on social relationships and interlocking social networks within which people are classified according to distinct categories of social relationships. In such a relational society, people's behaviors are governed by rituals (*li* in Chinese) rather than rules of law. Rituals are publicly recognized behavioral norms maintained by tradition. Order in such a society depends primarily on people's obedience to their principal social obligations. Following Dr. Fei's theory, we argue that listing the TMT names in the order of power in the annual report can serve as a ritual in a relational society. Such a ritual could be optimal because it helps signal a person's hierarchical position in an organization and enables the relevant parties both inside and outside the organization to know how to relate to each other and facilitate relational contracting. Listing the TMT names alphabetically would be inconsistent with the rituals of a relational society and cause confusions among relevant stakeholders.

[2] For example, in the United States, Item 10 of the 10-K provides information about the background and experience of the company's directors and executive officers who are often listed alphabetically.

To validate our managerial power proxy, we follow Finkelstein (1992) by examining the associations between the individual sources of power and the order of the TMT members in the annual report. To the extent that the ordered TMT name list is a valid proxy for managerial power, we should expect the proxies for the individual power sources to load as predicted and explain a significant portion of the variation in the ordered TMT name list.

Finkelstein (1992) identifies four key dimensions of an individual executive's power, referred to as structural power, ownership power, expert power, and prestige power, and then use objective indicators as proxies for each power dimension. We follow Finkelstein (1992) to the extent possible by identifying objective proxies for the four power dimensions.

Considering Chinese firms' unique situations, we identify three additional sources of power relevant to the Chinese/Asian context but not considered in Finkelstein (1992): political power, seniority power, and gender power. Given the importance of political connection and *guanxi* in China, we hypothesize that politically connected executives are more powerful. In Asian cultures, respecting elderly is a widely held social norm (Fei et al. 1992). Hence, we hypothesize that executives with higher seniority are more powerful. Finally, considering the dominance of males in Chinese/Asian societies, we also hypothesize that male executives are more powerful than female executives.

Our sample covers all publicly listed Chinese firms, including the two main boards, the small and medium enterprises (SME) board, and the growth enterprise board ChiNext, over the period 2005–2013. Following the definition of China Securities Regulatory Commission, TMT refers to a firm's top executives explicitly disclosed in the firm's annual report, including the Board Chairman, the CEO, vice presidents, the CFO, the Board Secretary, and other top managers designated by the firm.[3] Because the Board Chairman and the CEO are always

[3] Please note that non-executive board members are excluded from the TMT definition because they are not involved in the day-to-day management of the firm.

ranked before other executives in the annual report, we exclude them from our main analyses. This exclusion ensures that our ordered TMT name list is a valid proxy for managerial power for the TMT members other than the top two executives. As expected, our validation results are stronger if the Board Chairman and the CEO are included.

We first validate our TMT power proxy using the full sample of publicly listed Chinese firms. We find strong evidence that the ordered TMT name list is a valid proxy for the relative power of TMT members. First, we find that when entered separately, all but one proxies for the seven dimensions of managerial power sources load as predicted. The R^2 for the seven dimensions of power sources varies from 0.8% for the gender power to 44.6% for the structural power. Second, when entered together in one combined regression, we find that all but two proxies for the seven power sources load as predicted. The R^2 for the combined model is 49.5%. Overall, these results suggest that the ordered TMT name list is a valid proxy for power.

We next validate our TMT power proxy for state-controlled firms (SOEs) and non-state-controlled firms (non-SOEs) separately using the same regression approach. The R^2 for the combined model is 45.7% for the SOE sample and 54.8% for the non-SOE sample, suggesting that the ordered TMT name list is a valid power proxy for both SOEs and non-SOEs.

The validation tests performed so far consider all the TMT members as a whole and focus on the relative power of all TMT members *within the same firm*. Hence, one may wonder whether our ordered TMT name list is a valid proxy for power for the same job function (e.g., CFO, CTO, COO, or CMO) *across different firms*. Unfortunately, many publicly listed Chinese firms use only the generic job title, Vice President, for the TMT members below the Board Chairman and the CEO and we do not know the specific job titles of these executives. In addition, many executives in some job functions (e.g., CMO or CTO) may not be part of the TMT in China. One exception is the job function of the CFO, which is required to be disclosed in the annual report for all publicly listed Chinese firms. Hence, we examine whether the power

ranking of the CFO in a firm can serve as a valid measure of power for a cross section of different firms. Specifically, we regress the power ranking of the CFO in a firm on the proxies for the seven power sources. We find that the power ranking of the CFO varies widely across firms in China. After excluding the CEO and Board Chairman from the TMT list, 20% of the CFOs are ranked at No.1 but more than 27% of the CFOs are ranked at or below No.5. More importantly, we find that the proxies for the seven power sources explain more than 30% of the variations in the CFO's power ranking, suggesting that our ordered TMT name list is also a valid power proxy for a particular category of top executives (i.e., CFOs) across firms.

As discussed above, a TMT member's power can be derived from multiple sources. Hence, one may ask whether any of the individual proxies for the different dimensions of power sources can be more effective than the ordered TMT name list in measuring TMT power. Most individual proxies are either coarse in measurement or limited in scope and therefore they can be easily dismissed as credible competing proxies for TMT power. However, we find that an executive's annual total compensation, a structural power proxy, could reflect multiple power sources and therefore it could be a potential rival proxy for the multi-dimensional TMT power construct. We find that managerial compensation is a useful proxy for TMT power but we find no evidence that managerial compensation is a better proxy than the ordered TMT name list.

After establishing the construct validity of the ordered TMT name list as a proxy for TMT power, we also use one accounting application to illustrate the value of incorporating managerial power in hypothesis tests. Specifically, we examine the relation between a CFO's accounting background and her firm's long-lived asset impairment decision. Hoitash, Hoitash and Curt (2016) show that CFOs with accounting backgrounds are more risk averse and therefore prefer to adopt more conservative corporate policies. Following Hoitash et al. (2016), we predict that CFOs with accounting background are associated with less risky investment projects and therefore face a lower need to make long-lived asset impairment. Our empirical

results support this prediction, but only for CFOs with sufficient power. Our finding supports Finkelstein's (1992) argument that incorporating managerial power provides stronger inferences about executive effects.

We make two important contributions to the TMT literature. First, we are the first study to develop and validate a comprehensive measure of TMT power for the entire population of publicly listed firms in a major financial market, China.[4] To our best knowledge, this is not possible for publicly listed U.S. firms because they do not disclose the power distribution of the named executive officers. One key advantage of our measure of TMT power is that it is directly provided by the firms themselves and therefore should have captured both observable and unobservable sources of power from the eyes of corporate insiders.

Second, to our best knowledge, we are the first study to develop a comprehensive measure of TMT power for the publicly listed firms of an Asian country. Despite Asia's unique cultures and institutions, we show that Finkelstein's (1992) four dimensions of power sources are largely applicable to publicly listed Chinese firms. Moreover, we extend Finkelstein's four power dimensions by considering three additional power sources more relevant to Asia: political connection, seniority, and gender.

The rest of the paper is organized as follows. Section 2 introduces our measure of TMT power for publicly listed Chinese firms. Section 3 discusses the various dimensions of power in TMT and their respective proxies. Section 4 presents the validation tests of our power measure for all TMT members within the same firm. Section 5 shows the validation tests for CFOs across different firms. Section 6 compares our power proxy with alternative TMT power

[4] Zhu, Ye, Tucker, and Chan (2016) use the ordered name lists of publicly listed Chinese firms as a proxy for *independent directors'* power. Zhu et al. did not examine the power of TMT and hence the two studies are complementary. We extend Zhu et al. by providing a rigorous validation of the ordered name list as a proxy for TMT power. Zhu et al. did not provide such a validation other than interviewing two independent directors and conducting a survey with a response rate of 5.2%.

proxies. Section 7 uses an accounting application to illustrate the usefulness of incorporating TMT power in hypothesis tests. Section 8 concludes.

2. The proposed measure of TMT power

We propose to use the order of TMT members disclosed in a firm's annual report as a comprehensive measure of the relative power of TMT members. Power plays important roles in all societies and China is no exception. Power is often displayed in visible ways in China and many other countries. For example, one can often discern the power of Chinese politicians based on the order of their names listed in major political meetings. Similarly, the seating charts for important political or business dinners in China are usually arranged based on the relative power of the dinner attendees. Our informal discussions with many publicly listed Chinese firms' directors and top executives suggest that the order of TMT members disclosed in the annual reports is based on the relative power of the TMT members. However, it is unknown whether this phenomenon applies to all publicly listed Chinese firms, including SOEs and non-SOEs. Hence, an important objective of this study is to determine whether the ordered list of TMT in the annual report is a valid measure of power for the TMT.

We obtain the ordered list of TMT from the following sections of a firm's annual report: "basic information of directors, supervisors, and senior executives" (list 1) and "changes in shareholding and remuneration of directors, supervisors, and senior executives" (list 2). If a firm-year does not disclose such information or if the order of the directors, supervisors and senior executives in list 1 and list 2 are inconsistent, we obtain the ordered TMT name list based on the order of the directors, supervisors, and senior executives disclosed in the introduction part of the annual report. Our definition of TMT includes only the executives that are still active as of the fiscal year end. We exclude all supervisory board members and non-executive directors from the definition of TMT because they do not represent the core of the

full-time TMT. Since the TMT size varies across firms and over time, we follow Ke and Yu (2006) by adopting the following normalized measure of power: *POWER* = 1 – (*RANK* – *MIN*)/(*MAX* – *MIN*), where *RANK* is the rank of the TMT members disclosed in the annual report of a firm-year with 1 being the highest rank. *MIN* is the minimum of *RANK* (i.e., 1) and *MAX* is the maximum of *RANK* (i.e., the number of TMT members in a firm-year). *POWER* ranges from zero (lowest power) to one (highest power).

3. Sources of power and proposed proxies

Finkelstein (1992) argues that power accrues to top managers who can cope with internal and external uncertainty and are uniquely positioned to do so. Finkelstein (1992) identifies other managers and boards of directors as the key internal sources of uncertainty and a firm's task and institutional environments as the major external sources of uncertainty.[5] The corresponding types of power that accrue to executives who can manage these uncertainties are structural power, ownership power, expert power, and prestige power. Considering the unique culture and institutions in publicly listed Chinese firms, we augment Finkelstein's four power dimensions with the following three additional power types not considered by Finkelstein (1992): (a) political power, (b) seniority power, and (c) gender power. Below we discuss these power types and their respective proxies.

3.1. Finkelstein's (1992) four power dimensions

Finkelstein (1992) develops and validates his objective proxies for the four power dimensions for 1,763 top managers working in 102 U.S. firms over the 1978–1982 period. Below we discuss each of the four power dimensions and the proxies we use for each power

[5] Finkelstein (1992) notes that managers could create uncertainty by holding conflicting preferences that confuse strategic direction. Accordingly, managers gain power by reducing this uncertainty through various means, including controlling an organization's decision agenda, the alternatives considered, or information flows.

dimension. Following Finkelstein (1992), we use multiple objective proxies for each of the four power dimensions. In addition, we define our proxies as closely to Finkelstein's as possible.

3.1.1. Structural power

The first source of power is structural power, which is based on formal organizational structure and hierarchical authority (Brass 1984; Hambrick 1981; Perrow 1970). The greater a manager's structural power, the greater her control over colleagues' actions. Consistent with Finkelstein (1992), we use the following three variables to proxy for structural power. The first proxy is *EXEC_DIR*, a dummy variable indicating whether a TMT member is also part of the firm's board. The second proxy is *COMP*, which measures a TMT member's total cash compensation relative to the total cash compensation of the highest paid manager.[6] The third proxy is *NUM_TITLES*, denoting the number of top executive job titles held by a TMT member.[7] Please refer to the Appendix for the detailed definitions of all variables included in the paper.

3.1.2. Ownership power

The second source of power is ownership power. Power accrues to managers in their capacity as agents acting on behalf of shareholders. Hence, the strength of a manager's position in the principal-agent relationship determines her ownership power. Finkelstein (1992) argues that the strength of a manager's ownership power depends on her ownership position as well as on her link to the founder of the firm. We use three proxies for ownership power. The first

[6] Non-cash compensation such as stock or option awards is generally immaterial in publicly listed Chinese firms and thus ignored. Our inferences are unaltered if we exclude the firm years with non-zero equity compensation (untabulted).

[7] Finkelstein (1992) uses a different proxy based on the percentage of individuals in a firm's TMT with higher official titles than a focal executive. This definition is not meaningful in China because most publicly listed Chinese firms have only one homogeneous title for the TMT members below the board chairman and the CEO: Vice President.

proxy is *SHARE_OWN*, which represents the stock ownership of a TMT member and her related parties acting in concert. The second proxy is *FOUNDER* indicating whether a TMT member is disclosed in the IPO prospectus as a top ten shareholder or a top management team member in the IPO year. The third proxy is *CONTROLLER* indicating whether a TMT member is the ultimate controlling shareholder of the firm. *CONTROLLER* is applicable to non-SOEs only because the ultimate owner of an SOE is not an individual. Hence, the value of *CONTROLLER* is always zero for SOEs.

3.1.3. Expert power

The third source of power is expert power, defined as the ability of a TMT member to deal with environmental contingencies and contribute to organizational success (Finkelstein 1992). Several components of a firm's task environment, such as its customers, suppliers, competitors, and the government, can create uncertainty for the organization (Thompson 1967; Porter 1980). Hence, Finkelstein (1992) argues that the more managers have developed contacts and relationships with elements of the task environment, the greater is their ability to cope with contingencies of the task environment, and the greater is their expert power. Following Finkelstein (1992), we assume that top managers with experience in a particular functional area can be said to be expert in that area. Hence, the top managers who can best deal with environmental requirements and who are well situated to cope with critical contingencies will be those with appropriate functional expertise. In addition, the breadth of managerial assignments over a career increases exposure to environmental actors and enhances an executive's ability to manage the relationships that grow out of such contact. Hence, following Finkelstein (1992), we use three proxies for expert power.

The first proxy is *SKILL_MATCH* measuring the match between a TMT member's functional areas (e.g., R&D) and her professional qualifications (e.g., senior engineer). To

define this variable, we follow Song (1982) and Ren et al. (2011) by dividing a firm's functional areas into the following major areas: production (narrowly defined as the daily management of a firm's manufacture), operation (narrowly defined as strategy setting, planning and supply chain management), R&D, human resources, administration, marketing, finance, law and compliance, and information. We also identify the professional qualifications from each executive's resume disclosed in the annual report. *SKILL_MATCH* is one if there is a match between a TMT member's functional areas and her professional qualifications and zero otherwise. For example, *SKILL_MATCH* would be coded as one if a TMT member's functional area is production and her professional qualification is a senior engineer or similar titles. On the other hand, *SKILL_MATCH* would be coded as zero if a TMT member's functional area is production but her professional qualification is a lawyer or none. The second proxy is *NUM_FUNCTIONS*, denoting the number of functional areas in which a TMT member holds a post. The final proxy is *NUM_POSITIONS*, denoting the number of senior executive positions a TMT member previously held based on her resume.

3.1.4. Prestige power

The fourth source of power is prestige power, based on a manager's personal prestige or status. Finkelstein (1992) argues that managerial prestige promotes power by facilitating the absorption of uncertainty from the institutional environment both informationally and symbolically. For example, members of the managerial elite who serve on external boards may gain valuable information on business conditions from their connections. Their prestigious status may also suggest to others that they have gilt-edged qualifications and powerful friends.

Following Finkelstein (1992), we use three proxies for prestige power. The first is *NUM_DIR*, denoting the number of board seats a TMT member holds in other listed firms. The second proxy is *NUM_NONPROFIT*, denoting the number of board seats a TMT member holds

in non-for-profit organizations. The third proxy is *EDU* indicating the level of a TMT member's education level that ranges from one to five.[8] Specifically, *EDU* is one if a TMT member's educational level is technical secondary level or below, two if the educational level is junior college level, three if the educational level is a bachelor degree, four if the educational level is a master degree, and five if the educational level is a doctor degree. Since we obtain the education information from the annual report, *EDU* is missing for a significant number (37%) of TMT members. We fill those missing values by assuming that their education levels are the same as the median education level of other non-missing TMT members in the same firm-year. However, if *EDU* is missing for all TMT members in a year, we assume that their education level is the same as the sample median in the year.

3.2. Political power

When Finkelstein (1992) proposed the definition of expert power, the government is regarded as an important element of a firm's task environment. However, Finkelstein (1992) did not develop explicit proxies for a manager's political connection with the government. In addition, most publicly listed Chinese firms have a dominant controlling shareholder (i.e., parent company) and hence managing the political relationship between the listed firm and the parent company becomes an important element of a firm's task environment. Considering the importance of political connection and *guanxi* (Fei et al. 1992) in China, we introduce two new proxies for political power not considered by Finkelstein (1992). Our first proxy is the political connection with the government (*PC*). Following Fan et al. (2007), we define a manager to be politically connected if she is a current or former government official at the central, provincial

[8] Rather than *EDU*, a better proxy could be the prestige of an executive's alma mater. Unfortunately, we do not such information for many TMT members.

or county government level, a representative of the People's Congress or the Chinese People's Political Consultative Conference (CPPCC) at the national, provincial or county level.

Our second proxy is *PARENT_POS* capturing a manager's relationship with the parent company of the listed firm. *PARENT_POS* is three if the manager holds the position of both the chairman of the board and the CEO at the parent company, two if the manager holds the positon of either the chairman of the board or the CEO but not both at the parent company, one if the manager holds any position lower than the board chairman and the CEO at the parent company, and zero if the manager holds no position at the parent company. We hypothesize that politically connected managers and managers with stronger ties to their listed firms' parent companies are more powerful.

3.3. Seniority power

In Asian cultures, respecting the elderly is a social norm (Fei et al. 1992). Hence, we hypothesize that seniority is an important source of managerial power. We measure seniority using both age (*AGE*) and tenure with the current firm (number of years since the manager joined the firm, *TENURE*). Finkelstein (1992) did not consider the seniority power.

3.4. Gender power

There has been increased discussion about the lack of female representation in corporate boards and TMTs around the world. This low female representation in the top echelon of publicly listed firms is more severe in Asia (Burkitt 2013), reflecting the dominance of males in Chinese/Asian societies. Hence, we conjecture that female TMT members are expected to be less powerful and therefore ranked lower in the ordered list of TMT in the annual report. We create an indicator variable *MALE* that equals one for male executives and zero for female executives.

4. Validation tests for all TMT members within the same firm

4.1. The sample and descriptive statistics

Table 1 shows the sample selection procedures. We start with all publicly listed Chinese firms over the 2005–2013 period. While publicly listed Chinese firms have been required to disclose the TMT name list since 1999, our sample starts in 2005 because certain data required for the subsequent empirical analyses (e.g., compensation data and resume data) are not available prior to 2005. According to the Chinese Company Law, TMT refers to the CEO, vice president, CFO, board secretary and other executives as specified in the listed firm's corporate charter. Unless stated otherwise, we obtain all the data used in this study from the China Stock Market and Accounting Research (CSMAR) database, a leading provider of corporate financial data. As indicated in Table 1, we eliminated a significant number of individuals from the initial sample because they are non-executive directors (including independent directors) and supervisors and therefore not part of our definition of TMT. Finally, we also exclude both the Board Chairman and the CEO from our main analyses because these two individuals are usually ranked before other executives. Hence, excluding these two top executives allows us to better demonstrate the validity of our TMT proxy. Our final sample contains 2,553 unique firms covering 16,692 firm-years over the 2005–2013 period. We further split the sample into SOEs and non-SOEs. A firm-year is defined to be an SOE if the listed firm's ultimate controlling shareholder is a government entity, a non-SOE if the listed firm's ultimate controlling shareholder is a non-government entity or individual, and missing if the listed firm has no controlling shareholder. The final sample contains 1,206 unique SOEs covering 8,251 firm-years and 1,578 unique non-SOEs covering 7,656 firm-years.

Panel A of Table 2 shows the distribution of the sample firms by year. The number of unique firms increases over time due to addition of IPOs over time. The number of unique non-

SOEs increases significantly over time due to the opening of the SME board in 2004 and the growth enterprise board ChiNext in 2009.

Panel B of Table 2 shows the distribution of the firm-years by TMT size. The TMT size (excluding the Board Chairman and the CEO) varies significantly from a minimum of 2 to a maximum of 45. The average size of TMT excluding the Board Chairman and the CEO is 5.40 for the full sample, 5.73 for the SOEs, and 5.04 for the non-SOEs. The median size is 5 for all three samples.

Table 3 reports the descriptive statistics for the 17 raw explanatory variables used in our regression, for the full sample in Panel A, and for the SOEs and non-SOEs in Panels B and C, respectively. By definition, *CONTROLLER* for SOEs is always zero.

4.2. Regression results for all publicly listed Chinese firms

We first validate our managerial power proxy using the OLS regression of *POWER* on the proxies for the seven dimensions of power sources for the full sample of all publicly listed Chinese firms. For all the regressions reported in the paper, we use heteroskedasticity-consistent standard errors clustered at the firm level. Because *POWER* is expressed in normalized ranking, we also perform the same procedure for all the 17 explanatory variables in the regression model. Specifically, for all the TMT members in each firm-year, we first compute the maximum and minimum values of each explanatory variable; we then transform each variable by subtracting this minimum value from its raw value and then divide it by the difference between the maximum and minimum values of this variable.

Panel A of Table 4 shows the OLS regression results of *POWER* for the full sample. It is important to note that all the regression results in Table 4 control for firm×year fixed effects. Therefore, the coefficient on an explanatory variable captures only the effect of that variable on *POWER* for the TMT members *within the same firm-year*.

We show the regression results for each power dimension as well as the combined model in Panel A. When entered individually, all the seven power dimensions explain some variations of *POWER*. The model R^2 ranges from a minimum of 0.8% for the gender power to a maximum of 44.6% for the structural power. When we combine all the seven power dimensions into one single regression in the last column, the combined model's R^2 is 49.5%. In addition, most of the regression coefficients are as predicted and significant. Therefore, our regression results find support for all four dimensions of power sources proposed by Finkelstein (1992). Furthermore, we find support for the importance of the three newly added power dimensions in this study: political power, seniority power, and gender power for publicly listed Chinese firms. Overall, the results in Panel A of Table 4 provides strong evidence that *POWER* is a valid proxy for TMT power.[9]

4.3. Regression results for SOEs and non-SOEs separately

Our full sample contains both SOEs and non-SOEs. Hence, a natural question is whether *POWER* is an equally valid proxy for TMT power for both types of firms. Panels B and C of Table 4 show the regression results of *POWER* for SOEs and non-SOEs respectively. We find strong evidence that *POWER* is a valid proxy for managerial power for both SOEs and non-SOEs. The combined model's R^2 is 45.7% for the SOEs and 54.8% for the non-SOEs. In addition, 81% (65%) of the coefficients on the individual proxies are as predicted and significant for the SOEs (non-SOEs).

[9] We find little evidence that publicly listed Chinese firms list their TMT members in *pinyin* or stroke count order. Since executive directors are always listed before non-director executives, we checked and found that only 6% of the firm-years with at least five TMT members list their non-director TMT members in *pinyin* or stroke count order. Inferences are similar if such firm-years are excluded from Table 4's regression.

4.4. Robustness checks

We perform a series of supplemental regression analyses to assess the robustness of *POWER* as a proxy for TMT power. To save space, we relegate the tables for some of these robustness checks to an internet appendix.

4.4.1. Results using raw values

Both *POWER* and the explanatory variables in Panels A-C of Table 4 are transformed from their raw values into standardized variables that fall between zero and one. To make sure that our regression results are not mechanically caused by this transformation, Panel D of Table 4 also replicates the same regression model for the full sample, the SOEs, and non-SOEs, respectively, using the raw values of both the dependent variable and explanatory variables. The dependent variable, *INV_RANK*, is the raw rank value multiplied by -1 so that higher values of *INV_RANK* represents greater power, consistent with the definition of *POWER*. The inferences are qualitatively similar, suggesting that the transformation itself does not drive our inferences.

4.4.2. Board TMT members versus non-board TMT members

We examine whether *POWER* is a valid proxy for power for board TMT members and non-board TMT members separately. This test is informative because as noted in the Introduction, publicly listed Chinese firms are required to disclose the names of the directors first, followed by the names of supervisory board members and non-director executives, respectively. Table A1 in the internet appendix shows the regression results of *POWER* for TMT members who are board members (Panel A) and for TMT members who are not (Panel B) separately. We find that the combined model's R^2 is comparable and still economically significant for both the executive directors and the non-director executives (27.1% vs. 22.5%).

Overall, the results suggest that *POWER* is a valid proxy for power for both director executives and non-director executives.

4.4.3. Deleting firms with smaller TMT sizes

We examine whether our regression results are robust to excluding firm-years with fewer than five TMT members. Because we focus on within-TMT variation by including firm×year fixed effects, a concern is that the regression results could be less stable for firm-years with fewer TMT members. As shown in Table A2 of the internet appendix, the inferences remain similar to those based on the full sample in Table 4. The regression model R^2 is 50.2% for the full sample, 46.6% for the SOE sample, and 56.2% for the non-SOE sample.

4.4.4. Including the CEO and Board Chairman

We also check whether our regression results hold if we include the CEO and Board Chairman in the list of TMT members. We include the Board Chairman in the definition of TMT because most board chairmen of publicly listed Chinese firms are full-time company employees of their respective listed firms (Chen et al. 2018). The results are shown in Table A3 of the internet appendix. The regression model R^2 is 70.6% for the full sample, 69.3% for the SOE sample, and 72.7% for the non-SOE sample, much higher than those reported in Table 4. Hence, we conclude that our inferences are robust to the inclusion of the top two TMT members.

5. Validation tests for CFOs across different firms

The validation tests shown in section 4 consider all the TMT members as a whole and focus on the relative power of all TMT members *within the same firm*. In this section, we examine whether our ordered TMT name list is a valid proxy for managerial power for the

same job function (e.g., CFO, CTO, COO, or CMO) *across different firms*. Unfortunately, many publicly listed Chinese firms use only the generic job title, Vice President, for the TMT members below the Board Chairman and the CEO. We do not know the specific job titles of these executives within their firms. The number of top executives for many interesting job functions (e.g., CMO or CTO) identified based on annual report information is very small, suggesting that annual report disclosure is incomplete or many of these executives are not part of the TMT in China. However, we note that the job function of the CFO is required to be disclosed in the annual report for all publicly listed Chinese firms. Hence, we examine whether the power ranking of the CFO in a firm can serve as a valid measure of power for a cross section of different firms. Specifically, we regress the within-firm power ranking of the CFO on the proxies for the seven power sources.

Table 5 reports the regression results. Panel A shows the distribution of the CFO's within-firm power ranking for our full sample, the SOE sample, and the non-SOE sample, respectively. It is interesting to note that the power ranking of the CFO varies significantly across the firms. For example, approximately 20% of the CFOs are ranked No. 1 in their respective firms for the full sample, the SOE sample, or the non-SOE sample.[10]

Panel B shows the validation regression results. The dependent variable *INV_RANK* is the raw within-firm ranking of a CFO in Panel A multiplied by -1 so that *INV_RANK* is comparable with *POWER*. Because the roles of the CFO position may not be readily comparable across different industries, we include industry×year fixed effects so that the coefficient on any explanatory variable represents the impact of the explanatory variable on *INV_RANK* for all CFOs working in the same industry year. The regression model R^2 is 30.2% for the full sample, 31% for the SOE sample, and 33% for the non-SOE sample. These results

[10] Please remember that we have already excluded the CEO and Board Chairman from Table 5. Hence, a CFO's ranking of 1 in Table 5 means that the CFO is ranked No. 1 among the remaining TMT of the firm.

suggest that our ordered TMT name list is a valid proxy for managerial power even if we limit our sample to only the top executives of the same type.

6. Competing TMT power proxies

As discussed in section 3, TMT power is a multi-dimensional construct. Hence, readers may wonder whether any of the individual TMT power proxies noted in section 3 can be a better proxy for the unobservable TMT power construct than our ordered TMT name list.

To examine this possibility, we consider all the individual TMT power proxies discussed in section 3. The measurement of most individual proxies is very coarse and therefore they can be ruled out as credible candidates for TMT power. For example, many proxies are dichotomous variables (e.g., *EXEC_DIR*, *FOUNDER*, *PC*, to name a few) and therefore they would not be useful to distinguish the relative power of TMT members who share the same value of a proxy. Likewise, many other proxies are limited in scope because they capture only one single dimension of TMT power and therefore they are unlikely to be as comprehensive as *POWER*. For example, we show in Table 4 that *EDU* is a good proxy for prestige power but it is unlikely to be a good proxy for structural power.

However, *COMP*, one of the structural power proxies, could be a potential alternative proxy for TMT power. This is because *COMP* could also reflect multiple power sources, including not only structural power but also ownership power, expert power, prestige power, political power, seniority power and gender power. In addition, *COMP* is continuous and thus could better capture the actual distance of power between two individuals. On the other hand, *COMP* may not be a reliable proxy for managerial power because managerial compensation could be significantly distorted due to China's culture of collectivism and communism history. China's score of individualism per Hofstede-Insights (https://www.hofstede-insights.com/country-comparison/china) is only 20 out of 100, suggesting that China is a highly

collectivist culture where people act in the interests of the group and not necessarily of themselves. In addition, prior to China's opening to the outside world in 1978, there was no private property and everyone worked for the Government or SOEs and was paid pretty much the same. Because of these cultural and historic reasons, the pay dispersion for the top executives of many publicly listed Chinese firms (both SOEs and non-SOEs) remains low or even zero today, making reported compensation a less reliable proxy for managerial power.[11]

The distortion of managerial compensation is particularly strong in publicly listed SOEs. The reason is that the top executives of many publicly listed Chinese SOEs are quasi-government bureaucrats (e.g., the TMT members with *PARENT_POS*=1) subject to China's rigid and hierarchical government personnel system including compensation.[12] Jiang et al. (2018) show that non-CEO top executives' horizontal pay dispersion is much lower in SOEs than in non-SOEs. Chen, Luo and Soderstrom (2018) also find that almost 40% of CEOs in publicly-listed Chinese SOEs receive zero pay from the companies for which they work. Because of Chinese SOEs' rigid personnel and compensation system, many SOE executives care more about political promotion than monetary reward. As a result, the SOE executives who have a greater prospect for political promotion would be more willing to sacrifice their financial reward in order to minimize potential accusations from both their opponents and the general public that they are more interested in pursuing personal reward rather than serving the public interests (Chen et al. 2013; Jiang et al. 2018; Chen et al. 2018). Furthermore, in recent years some Chinese SOEs have started to experiment with recruiting some of their TMT members (typically vice president positions) from the competitive external labor market. Typically, the annual compensation for these externally promoted executives is much higher

[11] Consistent with the sensitivity of the managerial compensation topic, a few anonymous board members of publicly listed Chinese firms told us that some controlling shareholders of publicly listed *non-SOEs* pay all top executives similar annual compensation disclosed in annual reports but reward high-performing executives with hidden bonuses.

[12] See Chen et al. (2013) for a detailed discussion of Chinese SOEs' internal labor market.

than that for the internally promoted executives, even though the latter could be more powerful than the externally hired executives. For these reasons, reported compensation may not be a reliable measure of managerial power for Chinese SOEs.

To test the validity of *COMP* as a competing proxy for TMT power, we replicate the regression in panel A of Table 4. Because *COMP* is a continuous variable while *POWER* is a transformed rank variable, we also convert *COMP* into a rank variable similar to *POWER* (denoted as *COMP_POWER*). Table 6 shows the replication of the model in panel A of Table 4 using *COMP* and *COMP_POWER* as dependent variables. To facilitate comparison, we reproduce the regression results in panel A of Table 4 (excluding *COMP* as an explanatory variable) in the first column of Table 6. Since the regression results for *COMP* and *COMP_POWER* are very similar, we focus on the regression of *COMP_POWER*, which is directly comparable to the regression of *POWER* in column (1) of Table 6.

There are two key conclusions from Table 6. First, *COMP* or *COMP_POWER* is a useful proxy for TMT power. Specifically, we find that managerial compensation can be explained by 10 out of the 16 TMT power proxies as predicted. In addition, the Pearson correlation between *POWER* and *COMP_POWER* is a positive 36.6% (untabulated). Second and more importantly, we find no evidence that *COMP* (or *COMP_POWER*) is a better proxy for TMT power than *POWER*. Specifically, we find that the coefficients on six important TMT power proxies (*FOUNDER*, *CONTROLLER*, *NUM_FUNCTIONS*, *NUM_NONPROFIT*, *PC*, and *PARENT_POS*) that are significant and as predicted in the ordered TMT name list regression become either insignificant or inconsistent with the prediction in the managerial compensation regression. Untabulated regression results show that the negative coefficient on *PARENT_POS* is due to the SOE sample while the negative coefficient on *PC* holds for both

the SOE sample and non-SOE sample.[13] In addition, we find that the overall model R^2 is 46.3% for our *POWER* model but only 32.8% for the *COMP* model and 25.3% for the *COMP_POWER* model. Overall, these results suggest that managerial annual compensation is a noisier proxy for TMT power than *POWER*.[14]

7. The usefulness of incorporating TMT power: An accounting application

After validating the construct validity of *POWER* in our sample, we next examine whether incorporating managerial power in research design allows us to conduct more powerful tests of hypotheses as predicted by Finkelstein (1992). While there are many potentially important corporate decisions we can consider, we use the CFO's long-lived asset impairment decision to illustrate the usefulness of *POWER*. We leave to future research to assess the usefulness of *POWER* for other important corporate decisions.

Hoitash et al. (2016) show that CFOs with accounting backgrounds (accountant CFOs) are associated with more conservative corporate policies. In this study we examine whether CFOs with accounting backgrounds also differ with regard to their long-lived assets write-off decisions. More importantly, we ask how a CFO's power interacts with her accounting background in determining her firm's long-lived asset impairment decision.

Hoitash et al. (2016) argue and find that due to greater risk aversion, accountant CFOs invest less in risky (but potentially value enhancing) projects. Because risky investments are more likely to require subsequent asset impairment, we predict that accountant CFOs should face a smaller need to write off long-lived assets. Because long-lived asset impairment is likely

[13] The results for *PC* and *PARENT_POS* are consistent with the research findings in Chen et al. (2013), Chen et al. (2018) and Jiang et al. (2018) discussed above. These results suggest that executives with political aspirations and executives who belong to Chinese SOEs' rigid personnel system are paid below the market rate, willingly or unwillingly.

[14] As noted in standard econometrics textbooks (e.g., Wooldridge 2016), random measurement error in a dependent variable would result in a larger error variance (i.e., smaller R^2) and larger variances of the OLS estimators.

a team-based decision, we further predict that the effect of a CFO's accounting background should also hinge on whether the CFO has sufficient power to make corporate investment and accounting decisions.

We test our hypothesis using the following model of long-lived asset impairment based on Riedl (2004) (firm and year subscripts are omitted for brevity):[15]

$$WO = \alpha + \beta_1 POWER\_ONLY + \beta_2 ACCOUNTING\_ONLY + \beta_3 POWER\_ACCOUNTING + CONTROLS + \varepsilon$$

Please refer to the Appendix for all variable definitions. All variables are measured contemporaneously following Riedl (2004). The dependent variable *WO* is the reported long-lived asset write-off for year *t*, divided by total assets at the end of year *t*–1, multiplied by 100. Following Hoitash et al. (2016) and Bernard et al. (2017), we measure a CFO's accounting background using a dummy variable, *ACCOUNTING*, that equals one if a CFO has prior working experience in an accounting firm or possesses at least one of the following professional titles: Senior Accountant title designated by the relevant government agencies, CPA, CFA, or CMA. *HIGH_POWER* is a dummy variable that equals one if the CFO is ranked No. 1 among the top managers excluding the CEO and Board Chairman in a firm-year and zero otherwise.[16] We divide our sample firm-years into four groups using *HIGH_POWER* and *ACCOUNTING*. *POWER_ONLY* is a dummy variable that equals one if *HIGH_POWER* is one and *ACCOUNTING* is zero. *ACCOUNTING_ONLY* is a dummy variable that equals one if *HIGH_POWER* is zero and *ACCOUNTING* is one. *POWER_ACCOUNTING* is a dummy variable that equals one if *HIGH_POWER* is one and *ACCOUNTING* is one. The benchmark group buried in the intercept of the regression is the CFOs with both *HIGH_POWER* and *ACCOUNTING* equal to zero. The coefficient on *POWER_ONLY* captures the effect of CFO power for CFOs without accounting backgrounds. The coefficient on *ACCOUNTING_ONLY* captures the effect of a CFO's accounting background for CFOs without power. The difference

[15] Managerial power is endogenous and therefore the regression results in Table 7 are not necessarily causal.
[16] Inferences are similar if *HIGH_POWER* is defined using the median value as the cutoff (untabulated).

in the coefficients between *POWER_ACCOUNTING* and *ACCOUNTING_ONLY* captures the incremental effect of a CFO's accounting background for CFOs with power.

We include three sets of control variables. First, we include the determinants of *WO* from Riedl (2004), including economic factors and reporting incentive factors. The exception is that we omit Δ*GDP* (the percentage change in China gross domestic product from year *t*–1 to year *t*) and *DINDROA* (the median change in firm *i*'s industry return on assets from period *t*–1 to *t*) because we include industry×year effects that subsume the effects of Δ*GDP* and *DINDROA*. Second, we control for a set of factors for the board chairman, the CEO and the CFO in order to make sure our results are not due to these omitted effects, but inferences are similar if such individual executive factors are omitted. Third, we include industry×year fixed effects.

Panel A of Table 7 shows the descriptive statistics for the regression variables of the *WO* model. As expected, the distribution of *WO* is right skewed, with about 20% of the firm-years having non-zero write-offs. 23% of the observations are CFOs with both high power and accounting backgrounds (i.e., *POWER_ACCOUNTING*=1), 16% are CFOs with accounting backgrounds but low power (*ACCOUNTING_ONLY* =1), 5% are CFOs with high power but no accounting backgrounds (*POWER_ONLY* =1), and the remaining 56% are the benchmark group of CFOs with low power and no accounting backgrounds.

Panel B of Table 7 shows the OLS regression results of the *WO* model for the full sample (column (1)) as well as the SOE and non-SOE subsamples (columns (2) and (3) respectively). [17] For the full sample, the coefficients on *POWER_ONLY* and *ACCOUNTING_ONLY* are both insignificant while the coefficient on

[17] Angrist and Pischke (2010) argue that the asymptotic properties and flexibility of linear models often produce more robust results than nonlinear models. In addition, linear models can accommodate large numbers of fixed effects, and coefficients in these models measure the marginal effects. Since we include industry×year fixed effects in the analysis, we use an OLS regression to estimate the *WO* model. In addition, as noted in Riedl (2004), some or even all of these zero-write-off observations may have true values of zero (reflecting no change in the value of assets), suggesting the distribution of *WO* may not be censored and thus OLS is more appropriate.

POWER_ACCOUNTING is significantly negative. In addition, the coefficients on *ACCOUNTING_ONLY* and *POWER_ACCOUNTING* are significantly different. These results suggest that CFOs with accounting backgrounds are associated with lower long-lived asset write-off but this finding holds only for CFOs with sufficient power.

For the SOE sample, we find that none of the coefficients on *POWER_ONLY*, *ACCOUNTING_ONLY*, and *POWER_ACCOUNTING* are significant. These results suggest that the CFO's influence over SOEs' investment decisions may be limited. On the other hand, the inferences for the non-SOE sample are qualitatively similar to those for the full sample.

Overall, the results from Table 7 show the importance of incorporating TMT power in designing stronger tests about managerial strategic decisions.

8. Conclusion

Existing research shows the importance of TMT power to corporate decision making of publicly listed firms. However, one impediment to this line of research is the lack of a readily available measure of TMT power for a large sample of publicly listed firms. In addition, there is little research about the impact of TMT power in countries outside the U.S. The objective of this study is to develop a comprehensive measure of power for the TMTs of all publicly listed Chinese firms. We demonstrate the validity of our measure by showing that our power measure is positively correlated with the common power sources identified in prior U.S. research, including structural power, ownership power, expert power, and prestige power. In addition, we show that our measure is also positively associated with three Asia-relevant power sources, including political power, seniority power, and gender power. We find evidence that our measure is a valid proxy for TMT power for both state-controlled firms and non-state-controlled firms. We also validate our TMT power proxy for one specific category of top executives that is required to be included in the TMT name list: the CFO.

We also examine whether the individual proxies for the different dimensions of TMT power sources can serve as better proxies for TMT power. We reject most of these individual proxies as credible candidates because of the coarseness of these proxies or limitations in the scope of these proxies. However, we find that managerial compensation is a useful proxy for TMT power, but we find no evidence that managerial compensation is a better proxy for TMT power than our ordered TMT name list.

After validating the ordered TMT name list as a proxy for managerial power, we next illustrate the usefulness of our TMT power proxy in one accounting application. Specifically, we test a hypothesis following Hoitash et al. (2016) that CFOs with accounting backgrounds are less likely to experience long-lived asset write-offs. We find support for this hypothesis but only for CFOs with sufficient power. This application shows the value of considering managerial power in hypothesis tests about managerial strategic decisions.

As noted in the Introduction, power is central to all strategic corporate decisions because individual managers are able to influence organizational outcomes only to the extent that they have power. Due to lack of observable power proxies, most prior research simply assumes managers have sufficient power to make relevant corporate decisions. With the ready availability of a simple yet comprehensive measure of TMT power in China, there are many potential applications that can explicitly incorporate the role of power in managerial decisions. We envision two types of possible applications. First, future researchers can use our power measure to better understand how TMT power is distributed across organizations and over time. This is an important question because of the increased uncertainty of a firm's external environment and therefore the power distribution within a TMT ought to adapt to such external environmental changes. Second, future researchers can also explicitly incorporate the role of TMT power in their hypothesis tests about managerial decision making. The list of potential applications here seems almost unlimited because there are so many important managerial

decisions firms face on a daily basis and often such decisions are made by TMTs and therefore incorporating the distribution of TMT power in such analyses seems crucial to better understanding managerial decisions, as shown in our long-lived asset impairment application.

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Appendix. Variable definitions

Panel A. Variables in Tables 3–5

Variable	Definition
POWER	*POWER* = 1 – (*RANK* – *MIN*)/(*MAX* – *MIN*), where *RANK* is the rank of the TMT members disclosed in the annual report of a firm-year with 1 being the highest rank. *MIN* is the minimum of *RANK* (i.e., 1) and *MAX* is the maximum of *RANK* (i.e., the number of TMT members in a firm-year). *POWER* ranges from zero (lowest power) to one (highest power).
INV_RANK	The negative value of *RANK*.
CFO_INV_RANK	The negative value of CFO rank within each TMT.
Structural power	
EXEC_DIR	A dummy variable indicating whether a TMT member is part of the firm's board.
COMP	A TMT member's total annual cash compensation (including bonuses) divided by the total cash compensation of the highest paid manager.
NUM_TITLES	The number of top executive job titles held by a TMT member.
Ownership power	
SHARE_OWN	The stock ownership of a TMT member and her related parties acting in concert.
FOUNDER	A dummy variable indicating whether a TMT member is disclosed in the IPO prospectus as a top ten shareholder or a top management team member in the IPO year.
CONTROLLER	A dummy variable indicating whether a TMT member is the ultimate controlling shareholder of the firm.
Expert power	
SKILL_MATCH	A dummy variable indicating whether there is a match between a TMT member's functional areas and her professional qualifications.
NUM_FUNCTIONS	The number of functional areas in which a TMT member holds a post.
NUM_POSITIONS	The number of senior executive positions a TMT member previously held based on her resume.
Prestige power	
NUM_DIR	The number of board seats a TMT member holds in other listed firms.
NUM_NONPROFIT	The number of board seats a TMT member holds in non-for-profit organizations.
EDU	A dummy variable that equals one if a TMT member's educational level is technical secondary level or below, two if the educational level is junior college level, three if the educational level is a bachelor degree, four if the educational level is a master degree, and five if the educational level is a doctor degree.
Political power	
PC	A dummy variable that equals one if a manager is a current or former government official at the central, provincial or county government level, or a representative of the People's Congress or the Chinese People's Political Consultative Conference (CPPCC) at the national, provincial or county level.
PARENT_POS	*PARENT_POS* is three if a TMT member holds the position of both the chairman of the board and the CEO at the parent company, two if the TMT member holds the positon of either the chairman of the board or the CEO but

	not both at the parent company, one if the TMT member holds any managerial position lower than the board chairman and the CEO at the parent company, and zero if the TMT member holds no managerial position at the parent company.
Seniority power	
AGE	The age of a TMT member
TENURE	The number of years since a TMT member joined the firm.
Gender power	
MALE	*MALE* equals one for male executives and zero for female executives.

Panel B. Variables in Table 6

Variable	Definition
COMP_POWER	*COMP_POWER* = 1 – (*COMP_RANK – MIN*)/(*MAX – MIN*), where *COMP_RANK* is the rank of a TMT member based on total annual cash compensation (*COMP*) with 1 being the highest rank. *MIN* is the minimum of *COMP_RANK* (i.e., 1) and *MAX* is the maximum of *COMP_RANK* (i.e., the number of TMT members in a firm-year). *COMP_POWER* ranges from zero (lowest power) to one (highest power).

Panel C. Variables in Table 7

Variable	Definition
WO	Firm *i*'s reported long-lived asset write-off (coded as a positive number) for period *t*, divided by total assets at the end of *t*–1, multiplied by 100.
ACCOUNTING	A dummy variable that equals one if a CFO possesses at least one of the following professional titles: Senior Accountant title designated by the relevant government agencies, CPA, CFA, CMA, or has prior working experience in an accounting firm.
HIGH_POWER	A dummy variable that equals one if a CFO is ranked first in the entire TMT (excluding the board chairman and CEO) and zero otherwise.
POWER_ONLY	A dummy variable that equals one if *HIGH_POWER* is one and *ACCOUNTING* is zero.
ACCOUNTING_ONLY	A dummy variable that equals one if *HIGH_POWER* is zero and *ACCOUNTING* is one.
POWER_ACCOUNTING	A dummy variable that equals one if *HIGH_POWER* is one and *ACCOUNTING* is one.
Economic factors	
DSALES	The percent change in sales for firm *i* from period *t*–1 to *t*.
DE	The change in firm *i*'s pre-write-off earnings from period *t*–1 to *t*, divided by total assets at the end of *t*–1.
DOCF	Firm *i*'s change in operating cash flows from period *t*–1 to *t* divided by total assets at the end of *t*–1.
Reporting incentives	
DMGT	An indicator variable that equals one if firm *i*'s chairman of the board or CEO changes in period *t*, and zero otherwise.
BATH	The proxy for "big bath" reporting, equal to the change in firm *i*'s pre-write-off earnings from period *t*–1 to *t*, divided by total assets at the

	end of *t*–1, when below the median of nonzero negative values of this variable, and zero otherwise.
SMOOTH	The proxy for "earnings smoothing" reporting, equal to the change in firm i's pre-write-off earnings from period *t*–1 to *t*, divided by total assets at the end of *t*–1, when above the median of nonzero positive values of this variable, and zero otherwise.
DEBT	An indicator variable that equals one if firm *i*'s debt in period *t* is private, and zero otherwise.
ST	An indicator variable (of Special Treatment status) that equals one if firm *i*'s net income is below zero in period *t*–1 and *t*–2.
BIGAC	An indicator variable that equals one if firm *i* is audited by an international Big 4 or Chinese domestic Big 10 audit firm in period *t*, and zero otherwise.
BOARD_IND	The ratio of the number of independent directors to board size.
CEO_CHAIR	A dummy variable that equals one if the CEO is also the chairman of the board.
Board chairman characteristics	
CHAIR_AGE	The age of the chairman.
CHAIR_TENURE	The number of years as chairman in the current position.
CHAIR_ABILITY	A dummy variable that equals one if the chairman possesses at least one of the following professional titles: Senior Accountant title designated by the relevant government agencies, CPA, CFA, CMA, or has prior working experience in an accounting firm, and zero otherwise.
CHAIR_COMP	The natural logarithm of the chairman's total compensation.
CHAIR_MALE	A dummy variable that equals one if the chairman is male.
CHAIR_SHARE_OWN	The stock ownership of the chairman and her related parties acting in concert.
CHAIR_EDU	*CHAIR_EDU* is one if the chairman's educational level is technical secondary level or below, two if the educational level is junior college level, three if the educational level is a bachelor degree, four if the educational level is a master degree, and five if the educational level is a doctor degree.
CHAIR_PC	A dummy variable that equals one if the chairman of the board is a current or former government official at the county or higher level, or a representative of the People's Congress or the Chinese People's Political Consultative Conference (CPPCC) at the county or higher level.
CEO characteristics	
CEO_AGE	The age of the CEO.
CEO_TENURE	The number of years as CEO in the current position.
CEO_ABILITY	A dummy variable that equals one if the CEO possesses at least one of the following professional titles: Senior Accountant title designated by the relevant government agencies, CPA, CFA, CMA, or has prior working experience in an accounting firm, and zero otherwise.
CEO_COMP	The natural logarithm of the CEO's total compensation.
CEO_MALE	A dummy variable that equals one if the CEO is male.
CEO_SHARE_OWN	The stock ownership of the CEO and her related parties acting in concert.
CEO_EDU	*CEO_EDU* is one if the CEO's educational level is technical secondary level or below, two if the educational level is junior college level, three if the educational level is a bachelor degree, four if the

	educational level is a master degree, and five if the educational level is a doctor degree.
CEO_PC	A dummy variable that equals one if the CEO is a current or former government official at the county or higher level, or a representative of the People's Congress or the Chinese People's Political Consultative Conference (CPPCC) at the county or higher level.
CFO characteristics	
CFO_AGE	The age of the CFO.
CFO_TENURE	The number of years as CFO in the current position.
CFO_COMP	The natural logarithm of the CFO's total compensation.
CFO_MALE	A dummy variable that equals one if the CFO is male.
CFO_SHARE_OWN	The stock ownership of the CFO and her related parties acting in concert.
CFO_EDU	*CFO_EDU* is one if the CFO's educational level is technical secondary level or below, two if the educational level is junior college level, three if the educational level is a bachelor degree, four if the educational level is a master degree, and five if the educational level is a doctor degree.
CFO_PC	A dummy variable that equals one if the CFO is a current or former government official at the county or higher level, or a representative of the People's Congress or the Chinese People's Political Consultative Conference (CPPCC) at the county or higher level.

Table 1. Sample selection procedures

	Full sample	SOE sample	Non-SOE sample
All A-share firms over 2005 to 2013	317,542	168,568	133,222
Full sample: 17,122 firm-years, 2,554 unique firms SOE sample: 8,425 firm-years, 1,209 unique firms Non-SOE sample: 7,889 firm-years, 1,584 unique firms			
Eliminating individuals not belonging to top management teams	(189,929)	(102,283)	(77,969)
Eliminating board chairmen and CEOs	(30,963)	(16,056)	(13,424)
Eliminating top management team members that quit in the current year or take on the position after the fiscal-year end	(5,722)	(2,509)	(2,950)
Eliminating observations with missing compensation or age data	(492)	(344)	(139)
Eliminating top management teams with only one member	(254)	(84)	(157)
Final sample	90,182	47,292	38,583
Full sample: 16,692 firm-years, 2,553 unique firms SOE sample: 8,251 firm-years, 1,206 unique firms Non-SOE sample: 7,656 firm-years, 1,578 unique firms			

Notes: This table shows the sample selection procedures. The number of individuals included or dropped in each step is shown in the table. The number of individuals, firm-years or unique firms for the full sample does not equal the summation of the numbers for the two subsamples because there are some firm-years that are neither classified as state-controlled firms (SOEs) nor as non-state-controlled firms (non-SOEs), and there are some firms that are classified as SOEs in some years but as non-SOEs in other years.

Table 2. Sample distribution

Panel A. Distribution by year

	Number of firms			Number of individuals		
	Full sample	SOE sample	Non-SOE sample	Full sample	SOE sample	Non-SOE sample
2005	1,297	878	370	6,601	4,659	1,703
2006	1,342	849	446	6,788	4,529	2,031
2007	1,489	914	528	7,706	5,002	2,468
2008	1,564	919	600	8,319	5,173	2,901
2009	1,699	904	689	9,163	5,212	3,382
2010	2,073	914	1,003	11,536	5,506	5,158
2011	2,301	932	1,256	12,443	5,410	6,446
2012	2,441	979	1,362	13,740	5,972	7,152
2013	2,486	962	1,402	13,886	5,829	7,342
Total	16,692	8,251	7,656	90,182	47,292	38,583

Panel B. Distribution by the size of top management team

	Number of firms			Number of individuals		
	Full sample	SOE sample	Non-SOE sample	Full sample	SOE sample	Non-SOE sample
2	1,102	356	705	2,204	712	1,410
3	2,158	858	1,205	6,474	2,574	3,615
4	3,200	1,419	1,619	12,800	5,676	6,476
5	3,362	1,653	1,571	16,810	8,265	7,855
6	2,596	1,436	1,028	15,576	8,616	6,168
7	1,734	1,032	612	12,138	7,224	4,284
8	1,086	632	389	8,688	5,056	3,112
9	608	355	226	5,472	3,195	2,034
10	335	212	109	3,350	2,120	1,090
11	179	106	66	1,969	1,166	726
12	118	73	41	1,416	876	492
13	61	40	19	793	520	247
14	48	25	20	672	350	280
15	32	23	8	480	345	120
16	24	9	13	384	144	208
17	18	9	9	306	153	153
18	6	1	4	108	18	72
19	14	7	6	266	133	114
20	3	0	3	60	0	60
21	2	1	1	42	21	21
>=22	6	4	2	174	128	46
Total	16,692	8,251	7,656	90,182	47,292	38,583

Notes: Panel A shows the distribution of the sample firms by year for the full sample, state-controlled firms (SOEs), and non-state-controlled firms (non-SOEs), respectively. Panel B shows the distribution of the firm-years by the TMT size for the full sample, state-controlled firms (SOEs), and non-state-controlled firms (non-SOEs), respectively.

Table 3. Summary statistics

Panel A. Full sample

	N	Mean	SD	P25	Median	P75
Structural power						
EXEC_DIR	90,182	0.23	0.42	0	0	0
COMP	90,182	0.60	0.25	0.43	0.63	0.79
NUM_TITLES	90,182	1.38	0.59	1	1	2
Ownership power						
SHARE_OWN	90,182	0.23	1.53	0	0	0
FOUNDER	90,182	0.36	0.48	0	0	1
CONTROLLER	90,182	0.01	0.11	0	0	0
Expert power						
SKILL_MATCH	90,182	0.15	0.36	0	0	0
NUM_FUNCTIONS	90,182	1.22	0.51	1	1	1
NUM_POSITIONS	90,182	2.87	1.86	2	2	4
Prestige power						
NUM_DIR	90,182	0.37	1.04	0	0	0
NUM_NONPROFIT	90,182	0.02	0.17	0	0	0
EDU	90,182	3.19	0.77	3	3	4
Political power						
PC	90,182	0.07	0.25	0	0	0
PARENT_POS	90,182	0.06	0.28	0	0	0
Seniority power						
AGE	90,182	45.26	6.90	40	45	50
TENURE	90,182	4.51	3.14	2	4	6
Gender power						
MALE	90,182	0.86	0.35	1	1	1

Panel B. SOE sample

	N	Mean	SD	P25	Median	P75
Structural power						
EXEC_DIR	47,292	0.18	0.38	0	0	0
COMP	47,292	0.63	0.25	0.5	0.69	0.8
NUM_TITLES	47,292	1.31	0.56	1	1	2
Ownership power						
SHARE_OWN	47,292	0.02	0.19	0	0	0
FOUNDER	47,292	0.25	0.44	0	0	1
CONTROLLER	47,292	0	0	0	0	0
Expert power						
SKILL_MATCH	47,292	0.18	0.38	0	0	0
NUM_FUNCTIONS	47,292	1.23	0.52	1	1	1
NUM_POSITIONS	47,292	2.95	1.94	2	2	4
Prestige power						
NUM_DIR	47,292	0.38	1.06	0	0	0
NUM_NONPROFIT	47,292	0.02	0.17	0	0	0
EDU	47,292	3.23	0.73	3	3	4
Political power						
PC	47,292	0.08	0.27	0	0	0
PARENT_POS	47,292	0.05	0.26	0	0	0
Seniority power						
AGE	47,292	46.22	6.46	42	46	51
TENURE	47,292	4.99	3.27	2	4	7
Gender power						
MALE	47,292	0.88	0.33	1	1	1

Panel C. Non-SOE sample

	N	Mean	SD	P25	Median	P75
Structural power						
EXEC_DIR	38,583	0.30	0.46	0	0	1
COMP	38,583	0.55	0.24	0.38	0.56	0.73
NUM_TITLES	38,583	1.46	0.62	1	1	2
Ownership power						
SHARE_OWN	38,583	0.51	2.29	0	0	0.05
FOUNDER	38,583	0.49	0.50	0	0	1
CONTROLLER	38,583	0.03	0.16	0	0	0
Expert power						
SKILL_MATCH	38,583	0.11	0.32	0	0	0
NUM_FUNCTIONS	38,583	1.22	0.49	1	1	1
NUM_POSITIONS	38,583	2.73	1.71	2	2	4
Prestige power						
NUM_DIR	38,583	0.36	1.01	0	0	0
NUM_NONPROFIT	38,583	0.02	0.17	0	0	0
EDU	38,583	3.12	0.80	3	3	4
Political power						
PC	38,583	0.05	0.23	0	0	0
PARENT_POS	38,583	0.08	0.30	0	0	0
Seniority power						
AGE	38,583	44.00	7.24	39	43	48
TENURE	38,583	3.86	2.80	2	3	5
Gender power						
MALE	38,583	0.83	0.38	1	1	1

Notes: This table reports the descriptive statistics for the 17 raw explanatory variables used in our regression, for the full sample in Panel A, and for state-controlled firms (SOEs) and non-state-controlled firms (non-SOEs) in Panels B and C, respectively. All variables are defined in the Appendix.

Table 4. Regression results on the construct validity of *POWER*

Panel A. Full sample

Dependent variable: *POWER*	(1) Structural	(2) Ownership	(3) Expert	(4) Prestige	(5) Political	(6) Seniority	(7) Gender	(8)
EXEC_DIR	0.518***							0.458***
	(0.007)							(0.007)
COMP	0.241***							0.185***
	(0.006)							(0.006)
NUM_TITLES	0.040***							0.039***
	(0.008)							(0.008)
SHARE_OWN		0.237***						0.056***
		(0.011)						(0.007)
FOUNDER		0.195***						0.017**
		(0.009)						(0.008)
CONTROLLER		0.301***						0.058***
		(0.020)						(0.015)
SKILL_MATCH			0.036***					-0.012*
			(0.010)					(0.006)
NUM_FUNCTIONS			-0.053***					-0.024***
			(0.009)					(0.006)
NUM_POSITIONS			0.151***					0.061***
			(0.007)					(0.005)
NUM_DIR				0.298***				0.049***
				(0.009)				(0.007)
NUM_NONPROFIT				0.166***				0.058***
				(0.022)				(0.016)
EDU				0.021**				0.018***
				(0.008)				(0.006)
PC					0.097***			0.022**
					(0.012)			(0.009)
PARENT_POS					0.380***			0.077***
					(0.012)			(0.009)
AGE						0.185***		0.116***
						(0.008)		(0.006)
TENURE						0.258***		0.095***
						(0.008)		(0.007)
MALE							0.101***	0.052***
							(0.010)	(0.006)
Firm×year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	90,182	90,182	90,182	90,182	90,182	90,182	90,182	90,182
R-squared	0.446	0.098	0.029	0.054	0.043	0.131	0.008	0.495

Panel B. SOE sample

Dependent variable:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
POWER	Structural	Ownership	Expert	Prestige	Political	Seniority	Gender	
EXEC_DIR	0.510***							0.449***
	(0.010)							(0.010)
COMP	0.262***							0.206***
	(0.008)							(0.008)
NUM_TITLES	0.042***							0.045***
	(0.011)							(0.011)
SHARE_OWN		0.142***						0.018
		(0.016)						(0.011)
FOUNDER		0.201***						0.019*
		(0.013)						(0.011)
CONTROLLER		-						-
SKILL_MATCH			0.038***					0.001
			(0.013)					(0.009)
NUM_FUNCTIONS			-0.067***					-0.041***
			(0.012)					(0.009)
NUM_POSITIONS			0.167***					0.068***
			(0.010)					(0.008)
NUM_DIR				0.253***				0.050***
				(0.012)				(0.010)
NUM_NONPROFIT				0.195***				0.099***
				(0.030)				(0.024)
EDU				0.030***				0.030***
				(0.012)				(0.008)
PC					0.083***			0.027**
					(0.015)			(0.012)
PARENT_POS					0.370***			0.115***
					(0.017)			(0.014)
AGE						0.189***		0.127***
						(0.012)		(0.009)
TENURE						0.226***		0.091***
						(0.011)		(0.010)
MALE							0.130***	0.077***
							(0.014)	(0.009)
Firm×year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	47,292	47,292	47,292	47,292	47,292	47,292	47,292	47,292
R-squared	0.401	0.055	0.036	0.038	0.035	0.120	0.012	0.457

Panel C. Non-SOE sample

Dependent variable:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
POWER	Structural	Ownership	Expert	Prestige	Political	Seniority	Gender	
EXEC_DIR	0.528***							0.458***
	(0.009)							(0.009)
COMP	0.213***							0.159***
	(0.008)							(0.008)
NUM_TITLES	0.039***							0.037***
	(0.011)							(0.010)
SHARE_OWN		0.333***						0.099***
		(0.013)						(0.009)
FOUNDER		0.190***						0.014
		(0.012)						(0.010)
CONTROLLER		0.244***						0.046***
		(0.022)						(0.015)
SKILL_MATCH			0.031**					-0.029***
			(0.015)					(0.008)
NUM_FUNCTIONS			-0.033***					-0.000
			(0.012)					(0.008)
NUM_POSITIONS			0.128***					0.051***
			(0.011)					(0.007)
NUM_DIR				0.343***				0.047***
				(0.012)				(0.009)
NUM_NONPROFIT				0.138***				0.021
				(0.032)				(0.019)
EDU				0.015				0.011
				(0.012)				(0.008)
PC					0.121***			0.020
					(0.019)			(0.013)
PARENT_POS					0.383***			0.046***
					(0.017)			(0.012)
AGE						0.183***		0.106***
						(0.012)		(0.008)
TENURE						0.299***		0.098***
						(0.011)		(0.010)
MALE							0.071***	0.029***
							(0.013)	(0.008)
Firm×year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	38,583	38,583	38,583	38,583	38,583	38,583	38,583	38,583
R-squared	0.501	0.160	0.020	0.075	0.052	0.147	0.004	0.548

Panel D. Raw variables

Dependent variable: *INV_RANK*	(1) Full sample	(2) SOE sample	(3) Non-SOE sample
Structural power			
EXEC_DIR	2.467***	2.625***	2.276***
	(0.052)	(0.088)	(0.051)
COMP	1.417***	1.483***	1.406***
	(0.081)	(0.111)	(0.115)
NUM_TITLES	0.095***	0.122**	0.102***
	(0.033)	(0.052)	(0.037)
Ownership power			
SHARE_OWN	0.029***	0.207***	0.034***
	(0.009)	(0.052)	(0.009)
FOUNDER	0.338***	0.263***	0.424***
	(0.054)	(0.079)	(0.071)
CONTROLLER	0.127	-	0.256
	(0.182)		(0.181)
Expert power			
SKILL_MATCH	0.019	0.098	-0.092
	(0.051)	(0.071)	(0.057)
NUM_FUNCTIONS	-0.110***	-0.157***	-0.014
	(0.028)	(0.038)	(0.033)
NUM_POSITIONS	0.103***	0.121***	0.067***
	(0.010)	(0.013)	(0.015)
Prestige power			
NUM_DIR	0.098***	0.094***	0.100***
	(0.017)	(0.023)	(0.019)
NUM_NONPROFIT	0.291***	0.431***	0.163*
	(0.076)	(0.115)	(0.090)
EDU	0.061**	0.136**	0.020
	(0.029)	(0.053)	(0.030)
Political power			
PC	0.152**	0.167**	0.119
	(0.061)	(0.082)	(0.093)
PARENT_POS	0.509***	0.708***	0.317***
	(0.063)	(0.092)	(0.086)
Seniority power			
AGE	0.033***	0.044***	0.026***
	(0.003)	(0.004)	(0.003)
TENURE	0.108***	0.102***	0.112***
	(0.012)	(0.015)	(0.017)
Gender power			
MALE	0.210***	0.347***	0.079
	(0.039)	(0.060)	(0.049)
Firm×year FE	Yes	Yes	Yes
Observations	90,182	47,292	38,583
R-squared	0.601	0.583	0.634

Notes: Panel A shows the OLS regression results of *POWER* for the full sample. Panels B and C show the regression results of *POWER* for state-controlled firms (SOEs) and non-state-controlled firms (non-SOEs), respectively. Panel D shows the OLS regression results of *INV_RANK* for the full sample and the two subsamples. Because *POWER* is expressed in normalized ranking, we also perform the same procedure for all the 17 explanatory variables in the regression model in Panels A, B and C. We show the regression results using all raw variables for the dependent variable and explanatory variables in Panel D. *CONTROLLER* is dropped from the regressions for the SOE sample because it is always zero for SOEs. All variables are defined in the Appendix. All regressions include firm×year fixed effects. Heteroskedasticity-consistent standard errors clustered at the firm level are shown in parentheses below the coefficients. ***, **, and * denote significance at the 1%, 5%, and 10% levels for two-tailed tests, respectively.

Table 5. CFO rank

Panel A. Distribution of CFOs by their rank

	Number of CFOs		
CFO rank	Full sample	SOE sample	Non-SOE sample
1	3,103	1,491	1,471
2	2,972	1,320	1,537
3	2,754	1,231	1,376
4	2,389	1,127	1,164
5	1,821	955	784
6	1,138	591	478
7	608	356	227
>= 8	621	337	250
Total	15,406	7,408	7,287

Panel B. CFO rank and power dimensions

Dependent variable: *CFO_INV_RANK*	(1) Full sample	(2) SOE sample	(3) Non-SOE sample
Structural power			
EXEC_DIR	1.841***	1.864***	1.738***
	(0.071)	(0.110)	(0.095)
COMP	0.330***	0.237	0.596***
	(0.109)	(0.153)	(0.149)
NUM_TITLES	0.370***	0.459***	0.306***
	(0.047)	(0.073)	(0.062)
Ownership power			
SHARE_OWN	0.059***	0.203	0.054***
	(0.012)	(0.217)	(0.010)
FOUNDER	-0.139**	-0.153	-0.266***
	(0.061)	(0.107)	(0.080)
CONTROLLER	-0.320	-	-0.353*
	(0.206)		(0.212)
Expert power			
SKILL_MATCH	-0.298***	-0.181*	-0.379***
	(0.075)	(0.108)	(0.107)
NUM_FUNCTIONS	0.061	0.148	-0.010
	(0.062)	(0.092)	(0.082)
NUM_POSITIONS	0.044***	0.074***	0.018
	(0.015)	(0.021)	(0.021)
Prestige power			
NUM_DIR	-0.055**	-0.094***	0.011
	(0.025)	(0.036)	(0.023)
NUM_NONPROFIT	0.188	0.182	0.173
	(0.147)	(0.221)	(0.192)
EDU	-0.044	-0.068	0.025
	(0.035)	(0.057)	(0.042)
Political power			
PC	-0.136	-0.181	-0.109
	(0.109)	(0.149)	(0.163)
PARENT_POS	0.212***	0.160	0.144
	(0.080)	(0.138)	(0.093)
Seniority power			
AGE	0.016***	0.025***	0.021***
	(0.004)	(0.007)	(0.005)
TENURE	0.049***	0.047***	0.060***
	(0.009)	(0.013)	(0.015)
Gender power			
MALE	-0.026	0.051	-0.106
	(0.060)	(0.095)	(0.074)
Industry-year FE	Yes	Yes	Yes
Observations	15,406	7,408	7,287
R-squared	0.302	0.310	0.330

Notes: Panel A shows the distribution of CFOs by their rank within each TMT (after excluding the board chairman and CEO) for the full sample, state-controlled firms (SOEs), and non-state-controlled firms (non-SOEs), respectively. Panel B shows the OLS regression results of *CFO_INV_RANK* for the full

sample and the two subsamples. *CONTROLLER* is dropped from the regressions for the SOE sample because it is always zero for SOEs. All variables are defined in the Appendix. All regressions include industry-year fixed effects. Heteroskedasticity-consistent standard errors clustered at the firm level are shown in parentheses below the coefficients. ***, **, and * denote significance at the 1%, 5%, and 10% levels for two-tailed tests, respectively.

Table 6. Replication using an alternative power proxy based on annual cash compensation

Dependent variable:	(1) *POWER*	(2) *COMP*	(3) *COMP_POWER*
Structural power			
EXEC_DIR	0.480***	0.123***	0.142***
	(0.007)	(0.010)	(0.009)
NUM_TITLES	0.044***	0.026***	0.017**
	(0.008)	(0.008)	(0.008)
Ownership power			
SHARE_OWN	0.072***	0.084***	0.083***
	(0.008)	(0.010)	(0.010)
FOUNDER	0.015*	-0.013	-0.012
	(0.008)	(0.010)	(0.009)
CONTROLLER	0.060***	0.012	-0.006
	(0.015)	(0.033)	(0.031)
Expert power			
SKILL_MATCH	-0.005	0.039***	0.040***
	(0.007)	(0.008)	(0.008)
NUM_FUNCTIONS	-0.030***	-0.029***	-0.033***
	(0.006)	(0.007)	(0.007)
NUM_POSITIONS	0.077***	0.088***	0.087***
	(0.005)	(0.007)	(0.006)
Prestige power			
NUM_DIR	0.060***	0.059***	0.064***
	(0.007)	(0.009)	(0.009)
NUM_NONPROFIT	0.055***	-0.017	-0.012
	(0.016)	(0.021)	(0.020)
EDU	0.024***	0.029***	0.030***
	(0.006)	(0.007)	(0.007)
Political power			
PC	0.016*	-0.035***	-0.034***
	(0.009)	(0.011)	(0.011)
PARENT_POS	0.060***	-0.095***	-0.076***
	(0.010)	(0.016)	(0.015)
Seniority power			
AGE	0.136***	0.113***	0.117***
	(0.007)	(0.008)	(0.007)
TENURE	0.124***	0.157***	0.157***
	(0.007)	(0.008)	(0.008)
Gender power			
MALE	0.066***	0.076***	0.071***
	(0.007)	(0.008)	(0.008)
Firm×year FE	Yes	Yes	Yes
Observations	90,182	90,182	90,182
R-squared	0.463	0.328	0.253

Notes: This table shows the replication of the model in panel A of Table 4 using *COMP* and *COMP_POWER* as dependent variables. To facilitate comparison, we reproduce the regression results in panel A of Table 4 (excluding *COMP* as an explanatory variable) in the first column of Panel A. All variables are defined in the Appendix. All regressions include firm×year fixed effects. Heteroskedasticity-consistent standard errors clustered at the firm level are shown in parentheses below

the coefficients. ***, **, and * denote significance at the 1%, 5%, and 10% levels for two-tailed tests, respectively.

Table 7. The relation between CFOs and long-lived asset impairment

Panel A. Descriptive statistics

	N	Mean	SD	P25	Median	P75
WO	13,550	0.12	0.66	0	0	0
POWER_ONLY	13,550	0.05	0.22	0	0	0
ACCOUNTING_ONLY	13,550	0.16	0.36	0	0	0
POWER_ACCOUNTING	13,550	0.23	0.42	0	0	0
Economic factors						
DSALES	13,550	0.22	0.62	-0.01	0.13	0.30
DE	13,550	0.01	0.09	-0.01	0	0.02
DOCF	13,550	0.01	0.11	-0.04	0	0.05
Reporting incentives						
DMGT	13,550	0.27	0.45	0	0	1
BATH	13,550	0.2	0.4	0	0	0
SMOOTH	13,550	0.7	0.46	0	1	1
DEBT	13,550	0.73	0.45	0	1	1
ST	13,550	0.02	0.14	0	0	0
BIGAC	13,550	0.54	0.5	0	1	1
BOARD_IND	13,550	0.36	0.05	0.33	0.33	0.38
CEO_CHAIR	13,550	0.19	0.4	0	0	0
Board chairman characteristics						
CHAIR_AGE	13,550	50.98	6.92	46	51	56
CHAIR_TENURE	13,550	5.83	3.43	3	5	8
CHAIR_SHARE_OWN	13,550	0.04	0.11	0	0	0
CHAIR_EDU	13,550	3.34	0.76	3	3	4
CHAIR_PC	13,550	0.36	0.48	0	0	1
CHAIR_MALE	13,550	0.96	0.2	1	1	1
CHAIR_ABILITY	13,550	0.06	0.24	0	0	0
CHAIR_COMP	13,550	8.83	5.91	0	12.3	13.12
CEO characteristics						
CEO_AGE	13,550	47.37	6.24	43	47	51
CEO_TENURE	13,550	5.62	3.34	3	5	8
CEO_SHARE_OWN	13,550	0.03	0.08	0	0	0
CEO_EDU	13,550	3.35	0.72	3	3	4
CEO_PC	13,550	0.17	0.37	0	0	0
CEO_MALE	13,550	0.94	0.23	1	1	1
CEO_ABILITY	13,550	0.1	0.3	0	0	0
CEO_COMP	13,550	12.4	2.26	12.19	12.79	13.31

CFO characteristics						
CFO_AGE	13,550	44	6.51	39	43	48
CFO_TENURE	13,550	4.72	3.1	2	4	7
CFO_SHARE_OWN	13,550	0	0	0	0	0
CFO_EDU	13,550	3.13	0.71	3	3	4
CFO_PC	13,550	0.06	0.23	0	0	0
CFO_MALE	13,550	0.73	0.44	0	1	1
CFO_COMP	13,550	12.15	1.65	11.76	12.36	12.89

Panel B. OLS regression results

Dependent variable: *WO*	(1) Full sample	(2) SOE sample	(3) Non-SOE sample
POWER_ONLY	0.014	-0.007	0.032
	(0.019)	(0.026)	(0.028)
ACCOUNTING_ONLY	-0.009	-0.024	0.005
	(0.013)	(0.021)	(0.017)
POWER_ACCOUNTING	-0.054***	-0.039	-0.070***
	(0.017)	(0.030)	(0.019)
Economic factors			
DSALES	-0.031**	-0.026	-0.033**
	(0.013)	(0.022)	(0.014)
DE	0.391**	0.648**	0.258
	(0.177)	(0.321)	(0.230)
DOCF	0.017	0.019	0.030
	(0.061)	(0.110)	(0.067)
Reporting incentives			
DMGT	0.021	0.028	-0.006
	(0.014)	(0.020)	(0.020)
BATH	0.150***	0.216***	0.112***
	(0.021)	(0.037)	(0.024)
SMOOTH	0.047***	0.057***	0.018
	(0.009)	(0.014)	(0.012)
DEBT	0.021**	0.023	0.009
	(0.009)	(0.017)	(0.011)
ST	0.144*	0.048	0.281*
	(0.086)	(0.096)	(0.159)
BIGAC	0.004	0.015	-0.014
	(0.012)	(0.017)	(0.015)
BOARD_IND	-0.166	-0.343**	0.034
	(0.108)	(0.145)	(0.163)
CEO_CHAIR	-0.020	-0.013	-0.034*
	(0.017)	(0.030)	(0.020)
Board chairman characteristics			
CHAIR_AGE	-0.003***	-0.004**	-0.001
	(0.001)	(0.002)	(0.001)
CHAIR_TENURE	-0.001	0.001	-0.003
	(0.002)	(0.003)	(0.004)
CHAIR_SHARE_OWN	-0.086**	-0.079	-0.120***
	(0.038)	(0.445)	(0.045)
CHAIR_EDU	0.008	-0.017	0.015
	(0.011)	(0.022)	(0.011)
CHAIR_PC	-0.015	-0.015	-0.017
	(0.014)	(0.019)	(0.022)
CHAIR_MALE	0.004	0.015	0.018
	(0.029)	(0.040)	(0.038)
CHAIR_ABILITY	0.031	0.019	0.062
	(0.032)	(0.035)	(0.064)
CHAIR_COMP	-0.001	-0.000	-0.001
	(0.001)	(0.001)	(0.002)

CEO characteristics			
CEO_AGE	0.001	0.002	0.001
	(0.001)	(0.002)	(0.001)
CEO_TENURE	0.001	0.002	-0.000
	(0.002)	(0.003)	(0.004)
CEO_SHARE_OWN	0.056	-0.604**	0.101*
	(0.053)	(0.294)	(0.057)
CEO_EDU	-0.008	0.009	-0.017
	(0.013)	(0.021)	(0.014)
CEO_PC	0.014	0.003	0.035
	(0.019)	(0.027)	(0.029)
CEO_MALE	0.000	0.074***	-0.049
	(0.029)	(0.022)	(0.041)
CEO_ABILITY	0.065**	0.047	0.079*
	(0.028)	(0.034)	(0.045)
CEO_COMP	0.000	0.004	-0.005
	(0.003)	(0.004)	(0.004)
CFO characteristics			
CFO_AGE	0.001	0.002	-0.001
	(0.001)	(0.002)	(0.001)
CFO_TENURE	0.001	-0.000	0.002
	(0.002)	(0.003)	(0.004)
CFO_SHARE_OWN	-0.304	-3.866	-0.462
	(0.593)	(3.545)	(0.680)
CFO_EDU	-0.007	0.008	-0.013
	(0.010)	(0.015)	(0.012)
CFO_PC	0.006	-0.020	0.090*
	(0.028)	(0.033)	(0.054)
CFO_MALE	-0.004	-0.003	0.008
	(0.014)	(0.021)	(0.017)
CFO_COMP	-0.015**	-0.022**	0.004
	(0.007)	(0.009)	(0.007)
Industry×year FE	Yes	Yes	Yes
p-value of *F*-test			
POWER_ACCOUNTING = ACCOUNTING_ONLY	0.0149	0.6035	0.0014
Observations	13,550	6,794	6,157
R-squared	0.088	0.098	0.131

Notes: Panel A shows the descriptive statistics for the regression variables of the *WO* model. Panel B shows the regression results of the *WO* model for the full sample (column 1) as well as the SOE and non-SOE subsamples (columns 2 and 3 respectively). All variables are defined in the Appendix. All regressions include industry×year fixed effects. Heteroskedasticity-consistent standard errors clustered at the firm level are shown in parentheses below the coefficients. ***, **, and * denote significance at the 1%, 5%, and 10% levels for two-tailed tests, respectively.

ONLINE APPENDIX

(NOT INTENDED FOR PUBLICATION)

Table A1. Board TMT members versus non-board TMT members

Panel A. Board TMT members

Dependent variable: *POWER*	(1) Full sample	(2) SOE sample	(3) Non-SOE sample
Structural power			
COMP	0.226***	0.230***	0.221***
	(0.019)	(0.030)	(0.024)
NUM_TITLES	-0.138***	-0.151***	-0.114***
	(0.029)	(0.048)	(0.035)
Ownership power			
SHARE_OWN	0.256***	0.107**	0.338***
	(0.029)	(0.050)	(0.033)
FOUNDER	-0.029	0.017	-0.065
	(0.040)	(0.056)	(0.054)
CONTROLLER	0.335***	-	0.314***
	(0.052)		(0.055)
Expert power			
SKILL_MATCH	-0.067*	-0.055	-0.085**
	(0.035)	(0.062)	(0.042)
NUM_FUNCTIONS	-0.056*	-0.070	-0.054
	(0.031)	(0.053)	(0.037)
NUM_POSITIONS	0.118***	0.139***	0.097***
	(0.021)	(0.036)	(0.025)
Prestige power			
NUM_DIR	0.141***	0.149***	0.122***
	(0.027)	(0.047)	(0.033)
NUM_NONPROFIT	0.018	0.142	-0.019
	(0.063)	(0.126)	(0.067)
EDU	0.032	0.060	0.024
	(0.023)	(0.042)	(0.028)
Political power			
PC	0.054	0.017	0.075
	(0.043)	(0.068)	(0.052)
PARENT_POS	0.283***	0.382***	0.206***
	(0.038)	(0.059)	(0.049)
Seniority power			
AGE	0.152***	0.171***	0.146***
	(0.021)	(0.037)	(0.026)
TENURE	0.124***	0.100**	0.172***
	(0.032)	(0.048)	(0.041)
Gender power			
MALE	0.036	-0.035	0.075**
	(0.032)	(0.064)	(0.035)
Firm×year FE	Yes	Yes	Yes
Observations	15,435	5,699	9,086
R-squared	0.271	0.227	0.321

Panel B. Non-board TMT members

Dependent variable: *POWER*	(1) Full sample	(2) SOE sample	(3) Non-SOE sample
Structural power			
COMP	0.266***	0.281***	0.245***
	(0.008)	(0.011)	(0.013)
NUM_TITLES	0.078***	0.070***	0.098***
	(0.011)	(0.015)	(0.017)
Ownership power			
SHARE_OWN	0.086***	0.041**	0.143***
	(0.012)	(0.017)	(0.018)
FOUNDER	0.043***	0.037**	0.042**
	(0.012)	(0.016)	(0.018)
CONTROLLER	0.086	-	0.058
	(0.061)		(0.062)
Expert power			
SKILL_MATCH	-0.015	0.002	-0.046***
	(0.011)	(0.014)	(0.017)
NUM_FUNCTIONS	-0.032***	-0.051***	0.003
	(0.009)	(0.012)	(0.014)
NUM_POSITIONS	0.075***	0.078***	0.066***
	(0.008)	(0.011)	(0.012)
Prestige power			
NUM_DIR	0.085***	0.081***	0.090***
	(0.012)	(0.015)	(0.019)
NUM_NONPROFIT	0.089***	0.134***	0.024
	(0.029)	(0.037)	(0.044)
EDU	0.029***	0.041***	0.018
	(0.009)	(0.012)	(0.014)
Political power			
PC	0.040***	0.040**	0.047*
	(0.015)	(0.018)	(0.027)
PARENT_POS	0.118***	0.165***	0.064*
	(0.022)	(0.028)	(0.034)
Seniority power			
AGE	0.150***	0.155***	0.152***
	(0.009)	(0.012)	(0.014)
TENURE	0.130***	0.122***	0.143***
	(0.010)	(0.013)	(0.016)
Gender power			
MALE	0.084***	0.111***	0.052***
	(0.010)	(0.013)	(0.016)
Firm×year FE	Yes	Yes	Yes
Observations	68,132	38,526	26,252
R-squared	0.225	0.239	0.216

Notes: This table shows the regression results of *POWER* for TMT members who are board members (Panel A) versus TMT members who are not (Panel B) separately. Because *POWER* is expressed in normalized ranking, we also perform the same procedure for all the 16 explanatory variables in the regression model. *EXEC_DIR* is dropped from the regressions because it is always one for executive directors (Panel A) and zero for non-director executives (Panel B). *CONTROLLER* is dropped from the

regressions for the SOE sample because it is always zero for SOEs. All variables are defined in the Appendix. All regressions include firm×year fixed effects. Heteroskedasticity-consistent standard errors clustered at the firm level are shown in parentheses below the coefficients. ***, **, and * denote significance at the 1%, 5%, and 10% levels for two-tailed tests, respectively.

Table A2. Deleting firms with smaller TMT sizes

Dependent variable: *POWER*	(1) Full sample	(2) SOE sample	(3) Non-SOE sample
Structural power			
EXEC_DIR	0.439***	0.434***	0.436***
	(0.007)	(0.010)	(0.009)
COMP	0.180***	0.196***	0.156***
	(0.006)	(0.009)	(0.008)
NUM_TITLES	0.035***	0.041***	0.033***
	(0.008)	(0.012)	(0.010)
Ownership power			
SHARE_OWN	0.054***	0.024**	0.094***
	(0.007)	(0.011)	(0.009)
FOUNDER	0.015**	0.014	0.017
	(0.008)	(0.011)	(0.010)
CONTROLLER	0.032**	-	0.026*
	(0.014)		(0.014)
Expert power			
SKILL_MATCH	-0.008	0.004	-0.025***
	(0.006)	(0.009)	(0.008)
NUM_FUNCTIONS	-0.026***	-0.036***	-0.005
	(0.006)	(0.009)	(0.007)
NUM_POSITIONS	0.060***	0.070***	0.045***
	(0.005)	(0.008)	(0.007)
Prestige power			
NUM_DIR	0.053***	0.055***	0.048***
	(0.007)	(0.009)	(0.009)
NUM_NONPROFIT	0.065***	0.101***	0.025
	(0.016)	(0.023)	(0.020)
EDU	0.014**	0.024***	0.007
	(0.006)	(0.008)	(0.008)
Political power			
PC	0.029***	0.030***	0.031**
	(0.009)	(0.012)	(0.013)
PARENT_POS	0.077***	0.112***	0.042***
	(0.010)	(0.015)	(0.012)
Seniority power			
AGE	0.108***	0.127***	0.088***
	(0.007)	(0.009)	(0.009)
TENURE	0.109***	0.104***	0.114***
	(0.008)	(0.011)	(0.011)
Gender power			
MALE	0.048***	0.069***	0.026***
	(0.007)	(0.010)	(0.008)
Firm×year FE	Yes	Yes	Yes
Observations	68,704	38,330	27,082
R-squared	0.502	0.466	0.562

Notes: We exclude firm-years with fewer than five TMT members. Because *POWER* is expressed in normalized ranking, we also perform the same procedure for all the 17 explanatory variables in the regression model. *CONTROLLER* is dropped from the regressions for the SOE sample because it is

always zero for SOEs. All variables are defined in the Appendix. All regressions include firm×year fixed effects. Heteroskedasticity-consistent standard errors clustered at the firm level are shown in parentheses below the coefficients. ***, **, and * denote significance at the 1%, 5%, and 10% levels for two-tailed tests, respectively.

Table A3. TMT members including the board chairman and CEO

Dependent variable: *POWER*	(1) Full sample	(2) SOE sample	(3) Non-SOE sample
Structural power			
EXEC_DIR	0.472***	0.470***	0.452***
	(0.004)	(0.005)	(0.005)
COMP	0.107***	0.101***	0.121***
	(0.004)	(0.005)	(0.005)
NUM_TITLES	-0.072***	-0.061***	-0.069***
	(0.004)	(0.006)	(0.005)
Ownership power			
SHARE_OWN	0.022***	0.002	0.046***
	(0.005)	(0.006)	(0.006)
FOUNDER	0.013***	0.008	0.017***
	(0.005)	(0.006)	(0.006)
CONTROLLER	0.078***	-	0.091***
	(0.005)		(0.006)
Expert power			
SKILL_MATCH	-0.003	0.008	-0.016***
	(0.004)	(0.006)	(0.005)
NUM_FUNCTIONS	-0.021***	-0.029***	-0.008
	(0.004)	(0.005)	(0.005)
NUM_POSITIONS	0.086***	0.089***	0.073***
	(0.003)	(0.005)	(0.005)
Prestige power			
NUM_DIR	0.040***	0.033***	0.052***
	(0.004)	(0.005)	(0.006)
NUM_NONPROFIT	0.039***	0.045***	0.030***
	(0.006)	(0.009)	(0.009)
EDU	0.023***	0.029***	0.017***
	(0.003)	(0.005)	(0.005)
Political power			
PC	0.025***	0.027***	0.020***
	(0.004)	(0.005)	(0.006)
PARENT_POS	0.105***	0.130***	0.070***
	(0.005)	(0.006)	(0.007)
Seniority power			
AGE	0.091***	0.100***	0.082***
	(0.004)	(0.006)	(0.006)
TENURE	0.067***	0.065***	0.072***
	(0.005)	(0.006)	(0.007)
Gender power			
MALE	0.042***	0.061***	0.025***
	(0.004)	(0.006)	(0.005)
Firm×year FE	Yes	Yes	Yes
Observations	120,385	62,850	51,781
R-squared	0.706	0.693	0.727

Notes: We repeat the analysis after including the board chairman and CEO in the sample. Because *POWER* is expressed in normalized ranking, we also perform the same procedure for all the 17 explanatory variables in the regression model. *CONTROLLER* is dropped from the regressions for the

SOE sample because it is always zero for SOEs. All variables are defined in the Appendix. All regressions include firm×year fixed effects. Heteroskedasticity-consistent standard errors clustered at the firm level are shown in parentheses below the coefficients. ***, **, and * denote significance at the 1%, 5%, and 10% levels for two-tailed tests, respectively.